

CLAIMS

1. A device for manufacturing a single-crystal solid phase (42) by solidification of a liquid phase (44), comprising:

5 a crucible (40) capable of containing the solid phase (42) and the liquid phase (44), the liquid phase being in contact with the crucible and the solid phase being separated from the crucible by an interstice (43); and

means for heating the liquid phase capable of creating a thermal gradient at the level of an interface (46) between the  
10 liquid phase and the solid phase,

characterized in that it comprises electromagnetic field generation means (50), distinct from the heating means, for applying an electromagnetic pressure on the junction surface (48) of the liquid phase at the level of said interface  
15 comprising at least one spiral (50) surrounding the crucible, and placed opposite to the area in which said interface forms in operation.

2. The device of claim 1, in which the crucible (40) is capable of containing the liquid phase (44) arranged  
20 above the solid phase (42), the device further comprising means for applying a first gas pressure on the junction surface (48) and a second gas pressure on a free surface of the liquid phase (44) opposite to the solid phase (42), the first gas pressure being greater than the second gas pressure.

25 3. A method for manufacturing a single-crystal solid phase (42) by solidification of a liquid phase (44) comprising the steps of:

providing a crucible (40) containing the solid phase (42) and the liquid phase (44), the liquid phase (44) being in  
30 contact with the crucible, the solid phase being separated from the crucible by an interstice (43);

applying a thermal gradient at the level of an interface (46) between the liquid phase and the solid phase; and

simultaneously applying an electromagnetic pressure over the entire junction surface (48) of the liquid phase at the level of said interface.

4. The method of claim 3, wherein the liquid phase  
5 (44) is located above the solid phase (42) and consisting of applying a first gas pressure on the junction surface (48) and a second gas pressure on a free surface of the liquid phase (44) opposite to the solid phase (42), the first gas pressure being greater than the second gas pressure.